
Data Science in Action #6

# Proving a reference value that considers all available co-information

Gerhard Svolba
Data Scientist, SAS Austria



THE POWER TO KNOW.

# Data Science Applications and Case Studies

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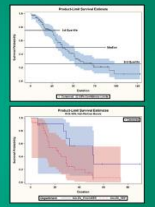

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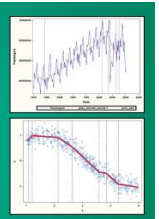

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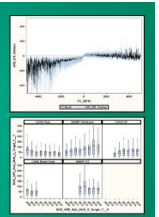

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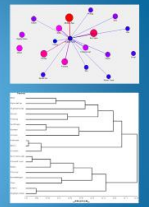

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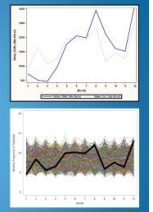

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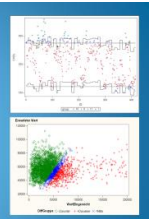

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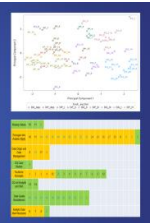

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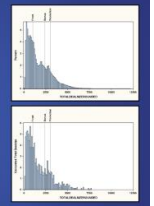

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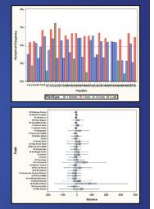

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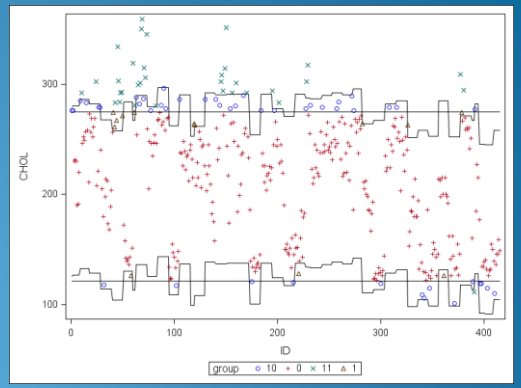


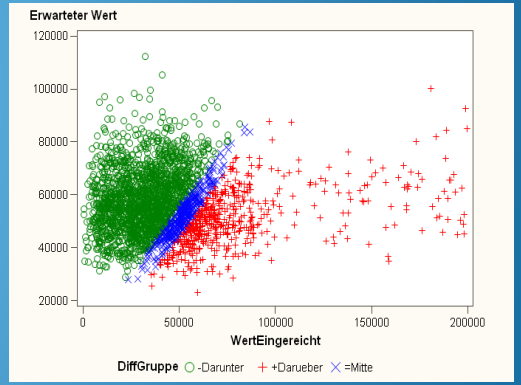


Linear Regression
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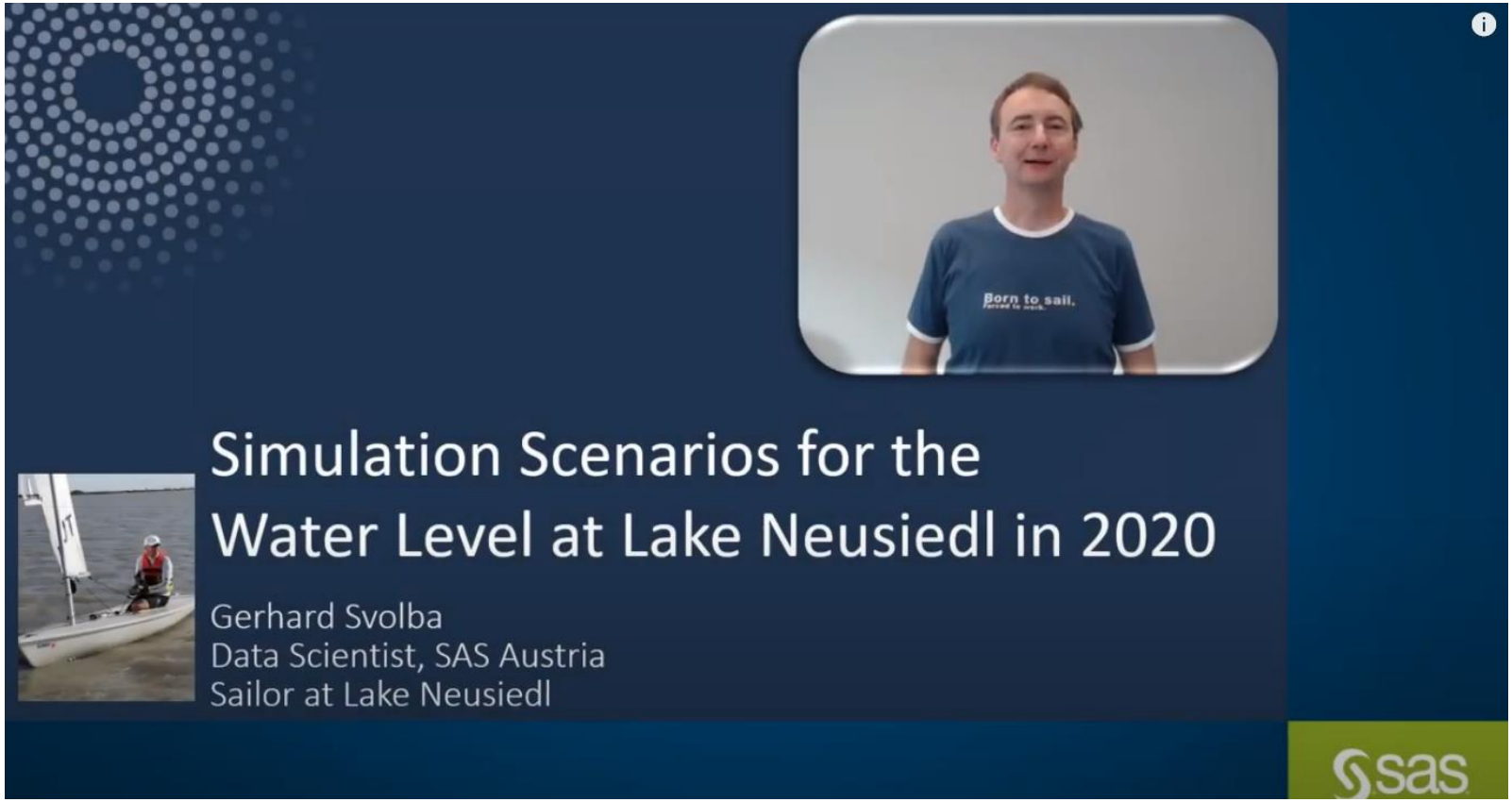
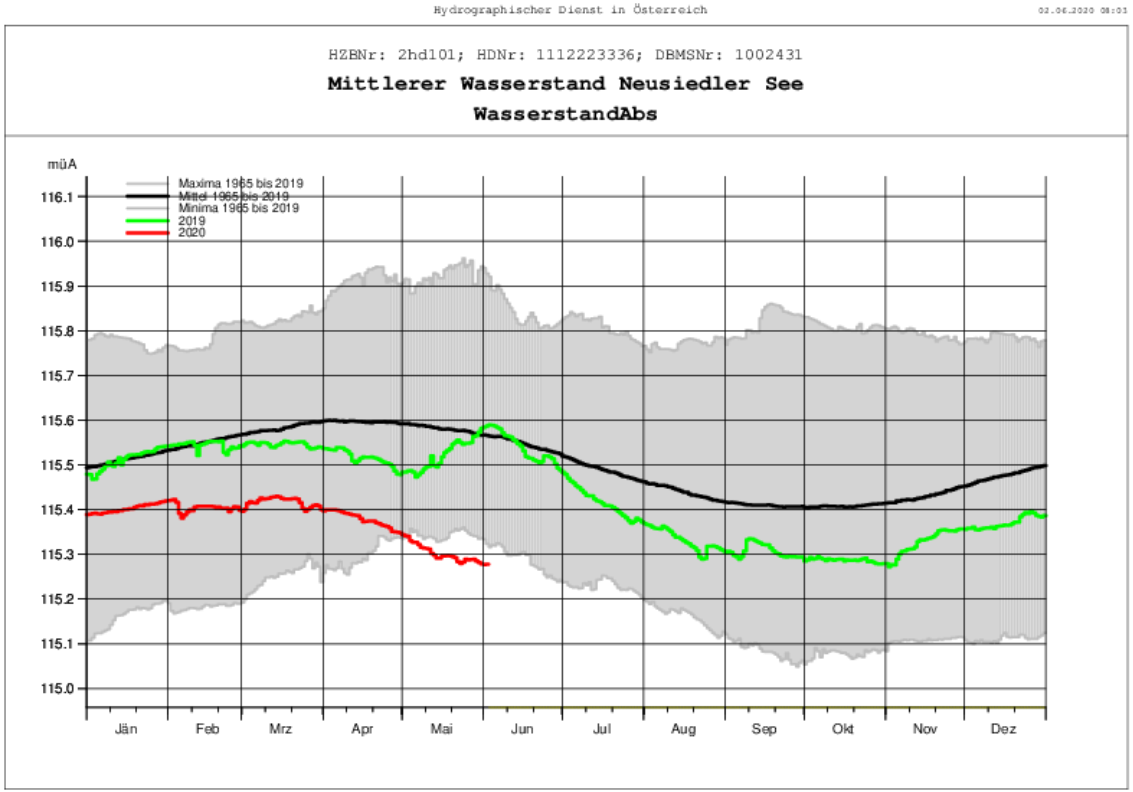
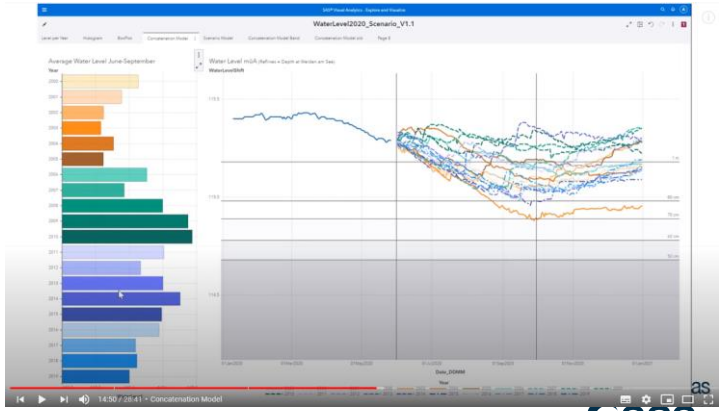
# One size does not fit all!
# What is your individual (seasonal) reference value?

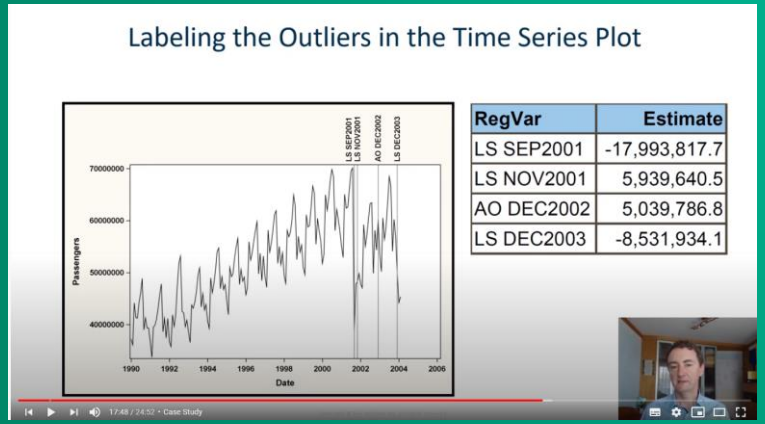


# Considering seasonal variation



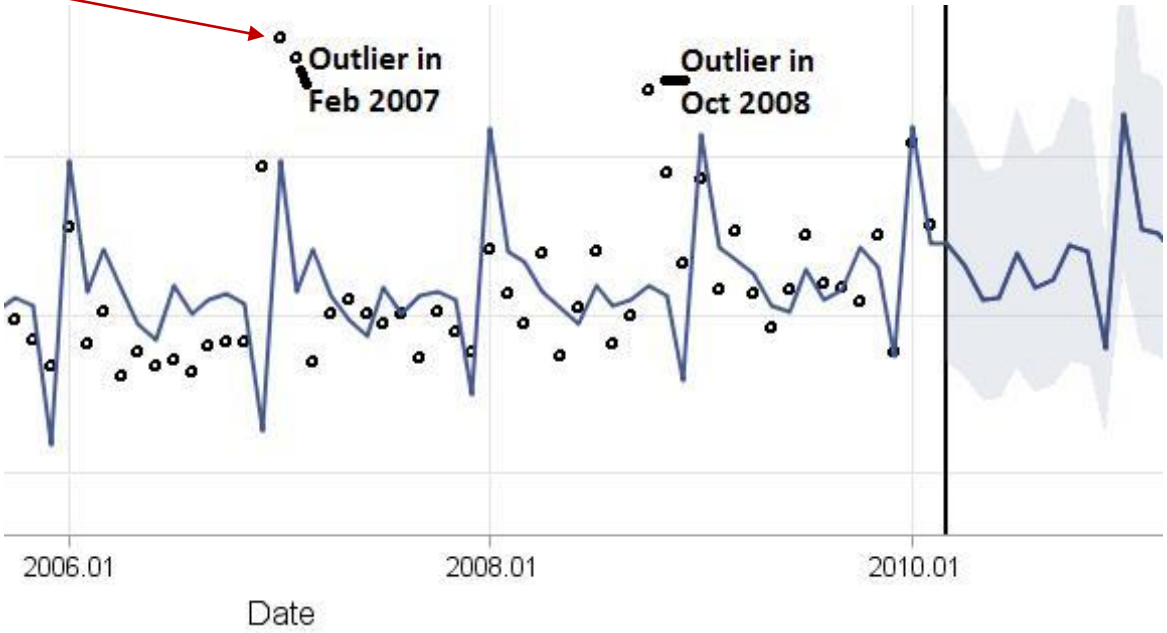
# Does this also work for time series analysis?




| RegVar | Estimate |
|---|---|
| LS SEP2001 | -17,993,817.7 |
| LS NOV2001 | 5,939,640.5 |
| AO DEC2002 | 5,039,786.8 |
| LS DEC2003 | -8,531,934.1 |

# „Yes, but ….
# … in January we always have more events.“

Time Series Model recognizes that this value in January is NOT an outlier

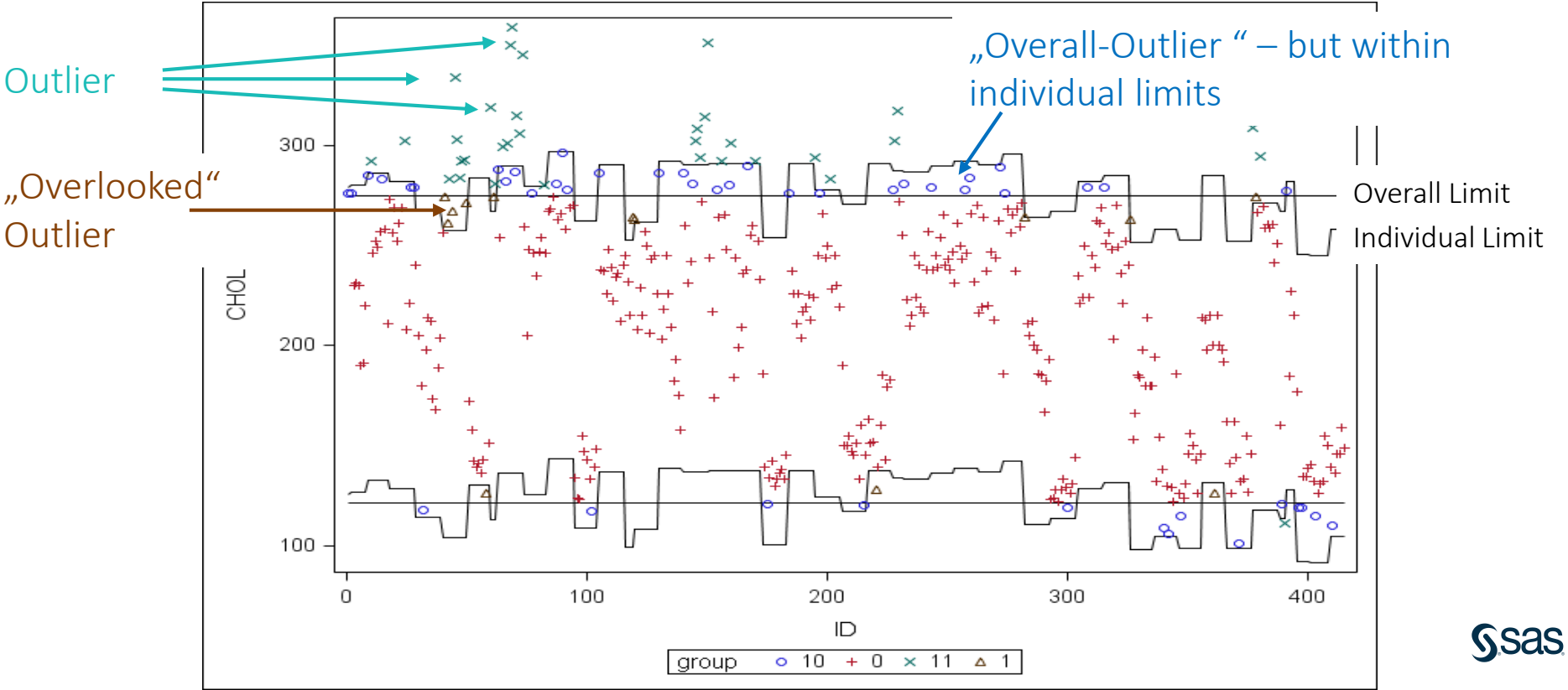


Use a simple regression model to calculate the „expected value“ based on other co-variables

# Calculating the expected cholesterol value based on co-variables

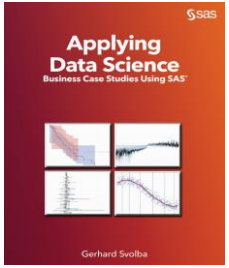
```
proc glmselect data=labor_chol_data;
 class sex centernr stage age_grp weight_grp;
 model chol =  age_grp
               sex
               weight_grp
               centernr
               stage;
 output out=pred_chol p=reference r=residual
            stdi=stdi stdr=stdr stdp=stdp;
run;
```

# *„All values larger than a certain threshold are outliers! - Really?“*



# Analytics and Data Science is there to help you!

- Get a clearer, more objective picture of your data and your analysis subjects
- Get explicit results instead of searching the needle in the haystack
- Make your data talk to you!
- Receive findings automatically instead of manually
- Do it again! – treat models as an asset and repeat your analysis



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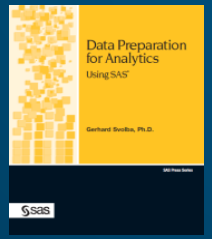



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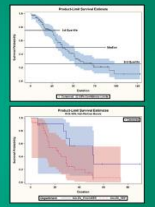

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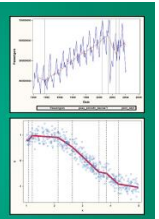

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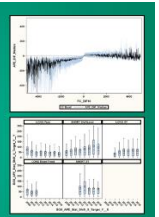

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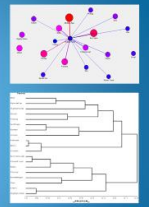

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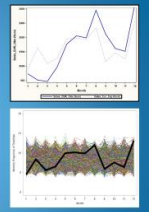

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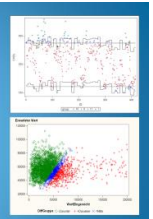

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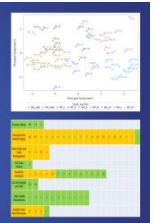

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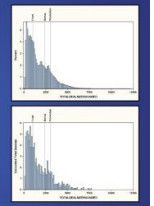

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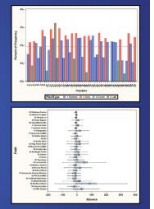

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